MEMORANDUM UR-11

To: PDP-1 Users (Dist. B)

From: John McCarthy and Roland Silver

Date: 19 December 1960

Subject: Colossal Typewriter Program (CT)

Description: The Colossal Typewriter program may be used for tape preparation and tape editing. It uses reader, punch, and typewriter under typewriter control.

1. There is a buffer region in core, extending, at any moment, from location A to location B-1.

2. Text (sequence of concise characters) may be input to the buffer from the reader or the typewriter. Each input character is stored in location B, then B is stepped (increased by 1). But any character with a delete bit (7-hole) is ignored.

3. The contents of the buffer (A to B-1, inclusive) may be typed out.

4. The contents of the buffer may be punched out.

5. The buffer can be manipulated.

CT is controlled by characters typed in. It operates in two modes: Control Mode and Text Input Mode.

How is one to cause a symbol which is a control symbol to be typed into the buffer? One types the equivalence sign ≡ (octal 40), followed by the symbol. Thus if α is any symbol (e.g., 'a', (61) or backspace (75) or '≡' (40)itself), typing the equivalence sign followed by α enters α in the buffer.

Control characters in text mode:

Symbol	Octal	Function
=	40	Quote. Next character typed is put in buffer.
Backspace	75	Delete. Removes last character in buffer from buffer.
]	21	Type-out. Types out contents of buffer.
>	56	Go to control mode.

Any other character typed is merely entered into buffer.

Control characters in control mode: α designates an octal number, delimited by a space.

Symbol	Octal	Function
=	40	Quote. Next character typed is put in buffer.
w	26	What? Types out A (location of beginning of buffer) and B (location of end of buffer plus one).
>	56	Go to text mode.
aα	61	Reset A to α.
bα	62	Reset B to α.
k	42	Kill. Reset B to A.
s	22	Step B (up one).
u	24	Unstep B (down one).
rα	51	Read α lines into buffer.
p	47	Punch out buffer. Then kill buffer.
]	21	Type out contents of buffer.

Symbol	Octal	Function
0	20	Ditto, on typewriter 0.
1	01	Ditto, on typewriter 1.
g	67	Go to typewriter control program.

Any other character is ignored.

CT occupies memory locations 700-1620, including the Typewriter Control Program in 1201-1620. When the binary program is loaded into core, control is given to TYC at 1201. Type "k" to transfer control to CT in control mode. Initially, A = B = 2000.

RLS/cph